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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,445	03/07/2002	Masato Taniguchi	Q68696	9556

23373 7590 11/03/2003

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WASHINGTON, DC 20037

EXAMINER	
JEFFERY, JOHN A	

ART UNIT	PAPER NUMBER
3742	

DATE MAILED: 11/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/091,445	TANIGUCHI ET AL.	
	Examiner	Art Unit	
	John A. Jeffery	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 September 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 7-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14-19* is/are allowed.

6)☒ Claim(s) *1,2 and 7* is/are rejected.

7)☒ Claim(s) *8-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *17 September 2003* is: a)☒ approved b)☐ disapproved by the Examine

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Joint Inventors--Common Ownership Presumed

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligations under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> Subject matter developed by another person, which qualifies as prior art only under subsection (f) and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US6512210) in view of Mizuhara (US4426033). Tanaka et al (US6512210) discloses in the abstract a ceramic heater with a heating element buried in a ceramic substrate and a lead wire joined to a connection terminal via a brazing

metal that, according to the abstract, is "based on Cu" (i.e., comprises a predominant amount of copper). Note also metal pads 8. The claims differ from Tanaka et al in calling for the brazing metal to contain titanium and silicon each in the amount of 0.1 - 5 % by mass of the brazing metal. Mizuhara (US4426033) discloses a brazing alloy for brazing ceramic to metal components comprising (1) a predominant amount of copper (col. 2, lines 22-26), (2) titanium from 0.25% - 5 % by weight (col. 2, lines 13-16; note titanium designated as the "reactive metal" in col. 1, lines 50-52); and (3) silicon from 1 to 6% by weight (col. 2, lines 26-29). According to col. 1, lines 25-32, brazing ceramic materials to metal components is problematic due to the differences in thermal expansion coefficients between ceramic and metal. Therefore, the reliability of the brazed joint highly depends on the ductility of the brazing alloy. As noted in col. 1, lines 58 - 66, titanium is the preferred reactive metal with copper-based alloys in view of the alloy's increased ductility. In view of Mizuhara (US4426033), it would have been obvious to one of ordinary skill in the art to provide titanium and silicon in the copper-based brazing alloy of Tanaka et al in order to increase the ductility of the ceramic-to-metal brazed joint.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US6512210) in view of Mizuhara (US4426033) and further in view of Finch (US2629922). The claim differs from the previously cited prior art in calling for the brazing metal to contain at least 85% by mass of copper. Providing a copper-based brazing material with 85% copper is well known in the art as evidenced by Finch

(US2629922) noting col. 2, lines 19-25 where a terminal for an electric resistor is brazed with a brazing material comprising 85% copper. The use of a high amount of copper (i.e., at least 85%) in the braze material is advantageous in view of copper's excellent electrical conductivity and its ability to melt to form a very effective brazed joint at the terminal. *See, e.g.*, col. 3, lines 26-29. In view of Finch (US2629922), it would have been obvious to one of ordinary skill in the art to utilize a copper-based braze with at least 85% copper so that the braze exhibited excellent electrical conductivity and was able to readily melt to form a very effective brazed joint at the terminal.

Allowable Subject Matter

Claims 8-13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-19 are allowable over the art of record.

Other Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The art should be both separately considered and considered in conjunction with the previously cited prior art when responding to this action. US 069, US Re. 521, US 605 disclose braze compositions for ceramic-to-metal joints relevant to the instant invention.

Response to Arguments

Applicant's arguments filed 9/17/03 have been considered but are deemed to be moot in view of the new grounds of rejection.

Final Rejection

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

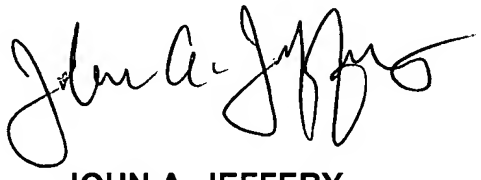
Any inquiry concerning this or earlier communications from the examiner should be directed to John A. Jeffery at telephone number (703) 306-4601 or fax (703) 305-

3463. The examiner can normally be reached on Monday-Thursday from 7:00 AM to 4:30 PM EST. The examiner can also be reached on alternate Fridays.

The fax phone numbers for the organization where this application or proceeding is assigned are:

Before Final	(703) 872-9302
After Final	(703) 872-9303
Customer Service	(703) 872-9301

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center receptionist whose telephone number is (703) 308-0861.



JOHN A. JEFFERY
PRIMARY EXAMINER

10/2/03